

# TOSHIBA

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# EMX-5000

## Integrated ISDB-T/Tb Headend



### Full functions of ISDB-T/Tb headend system integrated in only 1U unit

EMX-5000 is a totally new solution for ISDB-T/Tb. This highly-integrated headend system has various functions required in ISDB-T/Tb broadcasting systems. Up to four channels H.264 hardware encoders, ten input multiplexer and ISDB-T/Tb re-multiplexer are all integrated into only 1U chassis. Introducing solely one unit to your existing system brings you the capabilities of ISDB-T/Tb multi-service composed of HD, SD and 1seg. EMX-5000 also has PSI generation and insertion functions required in the ISDB-T/Tb standard. It is possible to make settings and changes easily by using the Web GUI. In addition, four TS inputs are equipped in EMX-5000. It is possible to multiplex the external TS signals incoming from Data-cast server, external encoders, and so on.

### The quickest means to jump into the new era of digital broadcast

EMX-5000 has analog V/A inputs and various conversion functions (analog to digital conversion, up conversion, down conversion, etc.). It is possible to achieve digital broadcasting easily by inputting analog signal from your existing analog television master system. Furthermore, EMX-5000's distribution function of input signals enables two or more simultaneous broadcasting services from one input.

EMX-5000 is the best solution to enable the full service of ISDB-T/Tb broadcasting with a minimum investment.

### PRODUCT OVERVIEW

#### ■ Multi-independent H.264 encoder modules

(with eight channels of embedded audio)

- Two encoder modules are mounted on the main board
  - HD/SD single channel encoder module x 1
  - SD/1seg dual channel encoder module x 1
- One encoder module can be added (optional)
  - HD/SD single channel encoder module x 1

#### ■ Multi-layered multiplexer and ISDB-T/Tb re-multiplexer

- Ten inputs multiplexer
- Multi-layered multiplex
- Multiplexing of four external TS inputs
- PID filters and remap functions
- BTS (DVB-ASI) output by re-multiplexing MPEG-TS
- Supporting cascade connections

#### ■ Multi input format

- HD/SD-SDI with embedded audio
- Analog video : NTSC M/J, PAL N/M
- Analog audio : Stereo (L/R), Monaural

#### ■ Signal conversion

- A/D converter, Up converter, Down converter
- Inter-conversion between Interlace and Progressive

#### ■ Static logo insertion

- Insertion of static logo data (ARGB file) on a screen per each channel

#### ■ Built-in Web server

- Easy operation by using Web browser
- Bilingual Web GUI (English and Spanish)
- Remote control and maintenance via Ethernet

#### ■ PSI generator and inserter

- PSI generated and insertion using built-in Web editor or TS packet file

#### ■ Alarm interface

- Ethernet (RJ-45, SNMP) and DIO (D-sub 9pin)

#### ■ Device management

- Updating software and firmware via Ethernet
- Downloading error / operation log via Ethernet

#### ■ Redundant power supply

- Hot swapping with redundant power supply units
- 100V - 240VAC  $\pm 10\%$
- 50 / 60Hz  $\pm 5\%$

#### ■ Low Power Consumption

- Less than 65 VA



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# EMX-5000 Integrated ISDB-T/Tb Headend

## Specifications

### INTERFACE

Input	HD/SD-SDI	Video	HD-SDI : SMPTE 292M, SD-SDI : SMPTE 259M	75Ω BNC	2 ports
		Audio	HD-SDI : SMPTE 299M, SD-SDI : SMPTE 272M		
	SD-SDI	Video	SMPTE 259M	75Ω BNC	2 ports
		Audio	SMPTE 272M		
	Analog Video	NTSC / PAL Composite Video Signal		75Ω BNC	2 ports
	Analog Audio	Stereo (L/R), Monaural		*1)	6 ports (3 stereo ports)
Output	DVB-ASI	MPEG2-TS (188byte or 204byte)		75Ω BNC	4 ports
	Reference signal	10MHz : frequency reference signal		50Ω BNC	1 port
		1pps : time reference signal		50Ω BNC	1 port
	DVB-ASI	MPEG2-TS (204byte)		75Ω BNC	1 port
	MONITOR	MPEG2-TS (188byte or 204byte)		75Ω BNC	1 port
	ALARM	Relay contact alarm output		D-sub 9pin	1 port
Control	A-CTRL	Audio mode control (Stereo / Mono / Mute)		*2)	1 port
	Console	RS 232C		D-sub 9pin	1 port
	Ethernet	100BASE-TX		RJ-45	2 ports

\*1) \*2) When using this function, you need to purchase a separately sold cable dedicated for this purpose.

### INPUT MATRIX

	ENC 1		ENC 2 (Option)		ENC 3-1		ENC 3-2	
	HD Mode	SD Mode	HD Mode	SD Mode	SD Mode	1SEG Mode	SD Mode	1SEG Mode
SDI 1 (HD/SD)	○	○	×	×	○	○	○	○
SDI 2 (HD/SD)	×	×	○	○	×	×	×	×
SDI 3-1 (SD)	○	×	×	×	○	○	○	○
SDI 3-2 (SD)	×	×	×	×	×	×	○	○
V-IN1 (Composite)	○	○	×	○	○	○	○	○
V-IN2 (Composite)	○	○	×	○	○	○	○	○

### ENCODING

	HD	SD	1SEG
<b>VIDEO</b>			
Compression Format	H.264/MPEG-4 AVC (MP@L4.0 and HP@L4.0)		H.264/MPEG-4 AVC (BP@L1.3)
Modes	1920 × 1080@29.97i, 25i	720 × 480@29.97i	320 × 240@29.97p, 25p
	1280 × 720@59.94p, 50p	720 × 576@25i	320 × 180@29.97p, 25p
Aspect Ratios	16:09	16:9 / 4:3	16:9 / 4:3
Encoding Bit-Rate	5.0 to 20.0Mbps (CBR)	2.0 to 14.0Mbps (CBR)	128 to 768kbps (CBR)
<b>AUDIO</b>			
Compression Format	MPEG-4 AAC-LC (LATM), MPEG-4 HE-AACv1 (LATM)		MPEG-4 HE-AACv2 (LATM)
Modes	Stereo : 1S, 2S, 3S, 4S		
	Mono : 1M, 2M, 3M, 4M		
	5.1ch		—
Sampling Frequency	48 KHz		
Encoding Bit-Rate	Stereo/Mono Mode : 96 to 384kbps		Stereo/Mono Mode : 32 to 96kbps
	5.1ch Mode : 256 to 384kbps		—

### PHYSICAL / POWER / ENVIRONMENTAL CONDITIONS

Dimensions (W × H × D)	482.6mm × 43mm × 430mm
Weight	< 7kg
Input Voltage Range	100V -240VAC ±10%
Line Frequency	50 / 60Hz ±5%
Power Consumption	< 65VA
Cooling	2 fans *air flow : front to side
Operating Temperature Range	+10° to +40°C
Storage Temperature Range	-20° to +60°C
Operating Humidity	< 95% *non-condensing

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